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Vital Chemistry—Lectures on Animal Heat. By THOMAS SPENCER, M. D., Prof. of the Institutes and Practice of Medicine, in the Medical Institution of Geneva College. Published by request of the Class. Geneva, 1845. pp. 114.

The above work does not assume to present any new experimental facts upon the subject, now much agitated, of Animal Heat, but a discussion of the subject, founded upon facts, for which the author acknowledges himself indebted "to those who have more particularly devoted their attention to these subjects, while the deductions are the result of his own reflections."

The new impulse given to the discussion of this most interesting subject by the investigations of Liebig, and the theories founded thereon, has called into the field two classes of disputants—the votaries of the chemical theories, and the advocates of, so called, pure physiology. As usual, both parties have carried their views beyond the limits of experimental truth and legitimate induction. The former class gives to chemical action an undue importance in the animal economy, allowing too little influence to vital force, in the modification of the laws applicable only to the mineral kingdom. The latter class, by denying entirely the agency of chemical force, as adjuvant to vital power, discourage investigation, and check the advance of science.

We are inclined to think that by both these classes, certain forces which perhaps may be called mechanical, have received less attention than they deserve. As an instance of that to

which we refer, may be cited the force which causes the absorption of oxygen and the escape of carbonic acid in respiration. This appears to us to be due simply to the diffusive force of gases, as established by Prof. Graham.

Dr. Spencer, in the lectures before us, assumes the presence of a triple compound of carbon, hydrogen, and oxygen, in venous blood. This compound he considers analagous to lignin or humus, and causes it to combine, during respiration, with oxygen; the carbon forming carbonic acid, and the hydrogen and oxygen escaping as vapor of water. The author appears sensible of the possibility of the heat thus generated consuming the lungs, and attempts to dispose of the large excess by the absorption of heat, in the exhalation of pulmonary vapor. That this is totally inadequate to the task assigned it, becomes evident, when we consider that in ordinary combustion of wood, its combined water, when passing into the state of vapor, absorbs an *imperceptible* amount of the sensible heat. It is only the water combined in the "hydrate of carbon," to which the author assigns the duty of preventing combustion of the lungs. If this be the only means of attaining the end required, the objection must still stand, that the combustion of the amount of carbon passing off by the lungs in the carbonic acid expired, if taking place in these organs, would elevate their temperature far beyond their natural state, if not to such a degree as to destroy the tissues. Besides, the mass of evidence in favor of the existence of carbonic acid, *as such*, in venous blood, and in proportion much greater than in arterial, appears to us conclusive, notwithstanding the Professor's answer to the objection in his last chapter. If this be true, there is no necessity for supposing, with Dr. Spencer, that combustion of carbon actually takes place in the lungs. Another proof of the same, is the fact that carbonic acid is equally expired, if gases *containing no oxygen* be inspired, as shown by the experiments of Spallanzani on cold-blooded animals, since repeated, with the same results, by M. Edwards. (See Müller's Physiology, book III, chap. 5.) This objection is ingeniously answered by Dr. S., in his last chapter, but the following, which is still more opposed to his theory, and we think unanswerable, he does not notice. The simple agitation of venous blood, out of the body, with hydrogen, nitrogen, and other gases contain-

ing no oxygen, is followed by the same result. How, we ask, can this be accounted for, otherwise than by the fact that the mechanical force of diffusion liberates the carbonic acid *existing as such*? Recent experiments of Mulder, as reported by Dr. Golding Bird, (see New York Jour. of Med., vol. IV, p. 409,) refer, with much reason, and in consistency with facts established by Scherer and Hewson, the change from the venous to the arterial hue, to the mechanical effect of various circumstances in modifying the reflective and refractive power of the fluids, with regard to light. In the work before us, no reference is to be found to Mulder's researches, which we think fatal to a large portion of the theory.

As regards the existence, assumed by Dr. Spencer, of the triple compound of carbon, hydrogen, and oxygen, in venous blood, we have only to say, that this is not proven by analysis, and as regards the coloring matter, it is distinctly proven, that it contains no more carbon in venous than in arterial blood.

The portion of the work discussing the agency of the compounds of iron in the function of hæmatisation, must yield, if we give any credit to the recent investigations of Mulder, (*loc. cit.*) proving that iron exists in hæmatosine in the *metallic state*. This he proves by the fact, not before hinted at, that upon the digestion of blood globules with sulphuric acid, hydrogen escapes, which could not occur, if the iron existed combined. And by the same analysis it is shown, that the iron is *unessential to the red color of blood corpuscles*. It is but justice to our author to add, that to the best of our knowledge, the investigations last referred to, had not been published in this country, at the time of the issue of his work. As our object, however, and that of our author, is to find the truth, we have thought proper to present these, as worthy of consideration, in connection with his views.

We may notice in passing, a misunderstanding of a chemical principle quoted from Liebig, and to be found on page 58. The principle is, that "carbonate of protoxide of iron, in contact with water and oxygen, is decomposed; all the carbonic acid is given off, and by absorption of oxygen it passes into the hydrated peroxide." In making use of this fact, the author remarks: "The blood always contains *water*. The carbonic acid itself contains *oxygen*, and these two conditions of the

law quoted (the presence of water and oxygen) existing, the carbonate of the protoxide of iron would be resolved into the hydrated peroxide, and the carbonic acid set free to combine in a new form." Every chemist will perceive that the author has entirely mistaken the law, it being absolutely essential to the reaction, that the oxygen itself be *free from all combination*. That carbonic acid will yield its own oxygen, to decompose one of its own compounds, is a chemical absurdity. Yet the establishment of the reaction quoted, is a most important link in the author's "circle of vital affinities," which indeed cannot be established without it. The author, on page 64, causes the reverse operation to occur in the lungs, when the conditions of the same law are actually present, *free oxygen* being supplied by inspiration.

Chapters VII and VIII discuss the chemico-vital relations of the pulmonic and gastric functions, and the chemico-vital connection of Digestion, Hepatic Secretion, Calorification, and Nutrition. They exhibit evidence of much reading and reflection, as well as ingenuity in connecting the various links of the chain of reactions. They are we think, subject to some objections, which we will state as briefly as possible. Chloride of soda, according to the author, is decomposed in the capillaries of the stomach, by a process analagous to galvanic action. The hydrochloric acid is secreted for the gastric juice, while the soda passes, one portion into the blood, to give it its alkaline reaction, another portion to the liver, to be used in the secretion of bile. A part of the hydrochloric acid is used to form sesquichloride of iron, which is supposed to pass by the lacteals into the blood, and on to the lungs, where it is decomposed by the free soda of the blood, forming common salt, and hydrated sesquioxide of iron. The author does not inform us why the chemical reaction, between the sesquichloride and the soda, does not take place in the subclavian vein, where the chyle reaches the blood, and what peculiar force compels it to wait for its reaction until it reaches the pulmonic capillaries. Again, the soda which passes to the liver, goes with the bile to the duodenum, there it finds albumen, which it dissolves, and passing into the lacteals, is carried into the blood. How, we would ask, can it pass through the lacteals, which are also made to carry the sesquichloride of iron, without the reaction taking place which would form

common salt and sesquioxide of iron. In the next place, the hydrochloric acid of the gastric fluid, is made the solvent of fibrine and caseine, which solution also passes into the lacteals, through the usual route to the mass of the blood, and so on to the "systemic capillaries," where it meets with soda holding albumen in solution, common salt is produced, and the albumen, fibrine, and caseine are dropped for the purposes of nutrition. This is an exceedingly ingenious solution of the problem of nutrition, but we cannot see, and are not informed by the author, by what force the usual chemical reaction, between the hydrochloric acid and the soda, is arrested until it reaches the systemic capillaries. Why does it not occur in the intestinal canal, when the soda of the bile, and the acid of the chyme are brought together? 2d. Why does it not occur when they commingle in the lacteals? And 3d, Why not in the mass of the blood? The presumption of the author is, evidently, that this chemico-vital change can only occur in the two systems of capillaries. Yet he does not give adequate reasons for the hypothesis, merely implying it by his results.

In our remarks we have endeavored to do justice, both to the author, and to the cause of truth and science. We were not only willing, but desirous, to find in Dr. Spencer's work, a new and satisfactory solution of the problem he professes to elucidate; and regret that to notice the work, compels us to notice some discrepancy with established facts, and true chemical principles. This is due to the fact, that *experimental* chemistry has not, as Dr. S. acknowledges, been to a great extent the subject of his studies. In chemical research, speculation is not admissible. Careful experiment is requisite at every step. To assume one point, not confirmed by the most strict analytical proofs, is sufficient to admit doubts, if not to justify the rejection of the whole. Much arduous labor in reading and reflection, will, we fear, be lost upon the work under review, for the want of experimental confirmation. Much credit is due to the author for the originality of some of his views, and the industry and ability evinced in amassing the facts, and conducting the reasoning to its conclusion. It is only the failure to establish certain steps, and occasional misapprehension and oversight, that set aside the results.

We hope the investigation will be continued; for if failing ultimately in establishing the desired solution, it cannot fail to elucidate the subject to a greater or less extent, and incite experimental inquiry in others.—ED.

BIBLIOGRAPHICAL NOTICES.

Mental Maladies. A Treatise on Insanity. By E. ESQUIROL, Physician-in-Chief of the Maison Royale des Aliénés de Charenton, &c. Translated from the French, with additions, by E. K. Hunt, M. D. Philadelphia: Lea & Blanchard, 1845. pp. 496. (From the publishers.)

The author's name is sufficient, alone, to recommend this work to the profession, and it is scarcely necessary to do more therefore, than simply announce an American edition of it. We may add that the style is lively and pleasing in the extreme, the descriptions vivid and faithful, the views for the most part just and broad, and it is pervaded at once by a spirit of philanthropy and love of the subject treated, which renders it a most interesting book even to the general reader. The *Journal of Insanity*, a competent authority, pronounces this the best of all the works that have appeared upon these diseases.

The principle of classification adopted is that of the ancients, dividing all mental diseases into five classes, viz: 1. Lypemania (Melancholy); 2. Monomania; 3. Mania; 4. Dementia; 5. Idiocy. It is known that other classifications have lately been recommended, particularly that which is based upon the different classes of faculties, as of perception, intellect, sentiment, &c., but this has not as yet been found so valuable as the former in its practical application to the treatment of the insane, whatever may be the merits of its principles considered abstractly.

It may be interesting to our readers to know what so eminent an observer as Esquirol thought of the pathology of Insanity, and of the functions of the different parts of the brain. In reference to the latter point the following quotation is offered:—"All the labor that has been expended on the anatomy of the brain, has produced no other result than a more exact description of this organ, and the despairing certainty of our

being forever unable to assign to its parts, the uses from whence we may derive information, with reference to the exercise of the thinking faculty, whether in health or disease." It is only one who knows well, both the history of our knowledge of the brain, as well as the present state of it, who can appreciate the grounds on which the above opinion rests; which, however, we trust, is yet less encouraging than the facts would justify.

In regard to the former, the pathology of insanity, we offer the following more extended extract:

1. Vices of conformation in the cranium, are met with, only among imbeciles, idiots, and cretins.

2. Organic lesions of the encephalon and its envelopes, have been observed only among those whose insanity was complicated with paralysis, convulsions and epilepsy; or rather, these lesions appertain to the malady which has caused the death of the patients.

3. The sanguine or serous effusions; the injections, or infiltrations, which we meet with in the cranial cavity; the thickening of the meninges; their adhesions among themselves, with the cranium and the gray substance; the partial or general softening of the brain; the density of this organ; the fibrous, knotty, and cancerous tumors, observed within the cranium; all these alterations indicate either the causes or effects of insanity; or rather the effects of a complication to which the patients have yielded.

4. The alterations within the thorax, abdomen and pelvic cavity, are evidently independent of insanity. These alterations may, nevertheless, indicate the source of mental alienation, by showing the organ primitively affected, which has reacted upon the brain.

5. All the organic lesions observed among the insane, are found to exist among those, who have never suffered from chronic delirium.

6. Many post-mortem examinations of the insane, have revealed no alteration, although the insanity may have persisted for a great number of years.

7. Pathological anatomy, shows us every part of the encephalon, altered, in a state of suppuration, and destroyed, without chronic lesion of the understanding.

8. From the above data, we may conclude, that there are cases of insanity, whose immediate cause escapes our means of investigation; that insanity depends upon an unknown modification of the brain; that it has not always its point of departure in the brain, but rather in the foci of sensibility, situated in different regions of the body; as disorders of the circulation do not always depend upon lesions of the heart, but upon those of some other portion of the vascular system.

The plan of treatment recommended is "isolation," or the removal of the patient from all ordinary scenes and associations, together with such medical treatment as each case may require. If we duly consider the influence of surrounding circumstances upon the mind, that they mould the character, and in certain cases, as in solitary confinement, efface the intellectual and moral faculties, we shall be prepared to understand the effect with which they are employed in the treatment of these diseases. While recoveries are comparatively rare among those treated at their own houses, or in private houses, one-half of those sent to well regulated retreats, are cured. We will add, in conclusion, that a portion, only, of the work of Esquirol has been translated by Dr. Hunt. All that part which relates to the statistics and hygiene of establishments for the insane, and the medico-legal relations of the subject, has been omitted.

D. B.

MEDICAL INTELLIGENCE.

MEDICAL SCHOOLS.—We have before us the announcements and catalogues of the following medical schools:

Jefferson Medical College, Philadelphia. This excellent institution, at its last session, numbered 409 students, and 117 graduates. The annual announcement gives a list of the medical and surgical cases brought before the class during the last session, and by its number and variety, sustains the high reputation of Philadelphia for advantages of clinical instruction. The industry and talent of the Faculty of this institution, have each year approximated more closely the number of their students to that of the oldest institution in the country—the University of Pennsylvania.

College of Physicians and Surgeons of the City of New York. The class of last winter, in this institution, numbered 193. Three courses of lectures are annually announced, extending the whole period of public instruction in the College, to eight months. The fall course, by Profs. Smith, Watts, Parker, and Gilman, is free for matriculants to the winter course. It commences on the first Monday of October, and continues during the month. The winter course, as usual, embraces the four months from November 3d to March 1st. The spring course is given in the college, by an association of gentlemen, most of whom are connected with the different public medical institutions in the city. It commences about the middle of March, and continues until June 1st.

Harvard University Medical Department, Boston. The class of last year numbered 157. The winter session commences on the first Wednesday of November, and continues four months. A resolution of the medical faculty, defines their relations with other schools as follows :

"That hereafter two full courses of lectures in this school, be required of candidates for the degree of Doctor of Medicine. But for one of these courses, a substitute may be received, in a course of lectures at any other medical institution, in which the number of teachers is not less than six, and in which the time occupied by lectures is not less than four months."

Albany Medical College. The catalogue of students embraces 112 names ; of graduates, 22. The means of clinical instruction in this institution, as shown by the report of cases and operations before the last class, appear to be ample. The next course commences on the first Tuesday of October, and continues sixteen weeks.

Medical College of Ohio, Cincinnati. Notwithstanding the number of rival medical institutions in Ohio, the class at Cincinnati numbered 210, of which 145 were from Ohio. This speaks well for the popularity of the college in its own State. The number of graduates was 47.

Medical Institute at Louisville. The class of 1844 and '45 exceeds that of any previous class, not only in this institution, but of any other medical school in the Valley of the Mississippi, numbering 286. The ensuing session commences Nov. 3d, and continues four months. There is also a summer school of medicine connected with the Institute, commencing March 17th, and continuing until the last of October, with a recess during the months of July and August. The Marine Hospital at Louisville affords opportunities of clinical instruction.

Medical College of South Carolina.—The class in attendance at the last session, embraced 186. Number of graduates, 74. Clinical instruction is furnished by a hospital attached to the college. The coming session commences on the second Monday of November, and closes on the first Saturday of March.

Medical College of Louisiana. Number of students, 93 ; of graduates, 15. Session commences on the third Monday of November, and continues four months. This institution has been adopted, under the new constitution of the State Convention, as the Medical Department of the University of La.

Appointments.—THOMAS RUSH SPENCER, M.D., son of Prof. Spencer, of the Geneva Medical College, has been elected Professor of *Materia Medica* in Willoughby University, and,

we are informed, has accepted the appointment. The Wiltoughby school is fortunate in having secured the services of Dr. Spencer, who has already recommended himself as a teacher of ability, as adjunct Prof. of Pathology and Materia Medica, in Geneva Medical College.

JOHN McLEAN, M. D., Prof. of Materia Medica and Therapeutics, in the Rush Medical College, has received the appointment of Prof. of Chemistry, Botany, and Physiology, in the Michigan Central College, a classical school fast rising into notice. Dr. McLean's new appointment will not interfere with his duties in the Medical College at Chicago.

The following article is one of much interest to practitioners in miasmatic regions. It is to them of the highest importance to have in their possession a substitute for the salts of quinia. Should the supply, by any accident of war, or otherwise, be cut off, deplorable indeed would be the result. Various species of the willow and poplar, containing salicine, are to be found in almost all sections of our country, and should it be discovered to possess the anti-periodic and febrifuge properties of quinia, the supply could not fail. Every physician should supply himself with salicine, and as opportunity affords, test its virtues. We would be happy to publish the results of such observations, in conducting and preparing the report of which, the circular of the Surgeon General may be taken as the guide.

Salicine—the Surgeon General's circular.—It redounds to the general reputation and to the high medical character of our country, that the highest medical officer in the Government is distinguished for his zeal in the profession for which he was educated. In the following circular, issued by him, an ardent desire is manifested for determining an important question; and to accomplish this object, there is a minuteness of detail required in the returns to be made at Washington, which must yield the most satisfactory results. We shall be happy to publish these results, whenever attainable. The following is the circular, signed by Thomas Lawson, Surg. Gen.:

"Sir,—The Medical Purveyor at New York has been directed to issue to those Military Posts, at which miasmatic diseases are of frequent occurrence, a supply of *salicine* (the active principle of the bark of the common *willow*)—a medicine which has been recommended by high authorities for its *febrifuge* and *anti-periodic* virtues.

"Inasmuch as the supply of the *sulphate of quinine* is, at best, precarious, and as, moreover, it may be diminished, at any time, by an interruption of our commercial relations with

foreign nations, it becomes the duty of officers of the Government who are intrusted with the health of those engaged in the public service, to use their best endeavors to provide a substitute for a remedy so highly valued, and so universally employed.

"I have therefore deemed it advisable to submit the salicine to trial on a large scale, with a view of ascertaining to what extent it may be relied upon as a substitute for the sulphate of quinine, in a case of emergency, and accordingly I have to request that you will institute a fair and impartial trial of its remedial powers, in your practice, in all cases of miasmatic disease in which the administration of quinine may not be indispensably requisite—and in such other cases as you may think proper.

"You will forward to this office a special report of your observations on the subject, on or before the expiration of the current year, noticing particularly the following points:—

"1. The doses in which you have employed salicine—with their effects.

"2. The diseases, and conditions of the system, in which it has been administered—and with what effect.

"3. Whether you have found it more, or less, liable to irritate the stomach, than sulphate of quinine.

"4. Any bad consequences you may have observed to follow its employment, attributable to the medicine.

"5. Any combinations you may have found to affect its activity; and what preparation of the system you have found necessary before its exhibition.

"6. Your opinion of its *modus operandi*.

"7. Its value as a remedy, as compared with sulphate of quinine, and other medicines of similar properties.

"8. Brief and concise notes of cases in which it has been employed in your practice—as numerous as practicable.

"It is proper to add, that as the profession at large will, doubtless, be interested in the results of these observations, they will probably be given to the public, in such form as will be most creditable to the observers."—*Bost. Med. Jour.*

PRACTICAL MEDICINE, &c.

Neuralgia—Introduction of Medicated Fluid to the Nerve.—By Mr. RYND,—Reported by Mr. Richard Gregory.—Margaret Cox, ætat 59, of spare habit, was admitted into hospital, May 18, 1844, complaining of acute pain over the entire of left side of face particularly in the supra-orbital region, shooting into the eye, along the branches of the portio dura in the cheek, along the gums of both upper and lower jaw, much increased in this situation by shutting the mouth and pressing

her teeth close together, and occasionally darting to the opposite side of the face, and to the top and back of her head. She states that about six years ago she fell from a wall, and in the act of falling, a stone struck her in the temple; that twelve months after this she was much exposed to cold, and one night was suddenly seized with the most agonizing pain in the situations above described. "She thought her eye was being torn out of her head," and her cheek from her face; it lasted about two hours, and then suddenly disappeared on taking a mouthful of ice. She had not had any return for three months, when it came back even worse than before, quite suddenly, one night, on going out of a warm room into the cold air. On this attack, she was seized with chilliness, shivering, and slight nausea; the left eye lachrymated profusely, and became red with pain; it went in darts through her whole head, face and mouth, and the paroxysm lasted for three weeks, during which time she never slept. She was bled and blistered, and took opium for it, but without relief. It continued coming at irregular intervals, but each time generally more intense in character, until at last, weary of existence, she came to Dublin for relief.

She had been salivated three times, and had been so much in the habit of taking laudanum, that latterly half a drachm, three times in the day, had no effect in lulling the pain, and was the quantity she commonly took. She was a miserable, sallow-complexioned looking creature, had been sleepless for months, and her face was furrowed with constant pain.

On the 3d of June, a solution of 15 grains of acetate of morphia, dissolved in one drachm of creosote, was introduced to the supra-orbital nerve, and along the course of the temporal, malar, and buccal nerves, by four punctures of an instrument made for the purpose. In the space of a minute all pain (except that caused by the operation, which was very slight,) had ceased, and she slept better that night than she had done for months. After the interval of a week she had slight return of pain in the gums of both upper and under jaw. The fluid was again introduced by two punctures made in the gum of each jaw, and the pain disappeared. After this the pain did not recur, and she was detained in hospital for some weeks, during which time her health improved, her sleep was restored, and she became quite a happy looking person. She left the hospital on the 1st of August in high spirits, and promised to return if she ever felt the slightest pain again. We conclude she continues well, for we have not heard from her since.

CASE II.—R. Dolon, ætat. 28, a thin spare man, of middle stature, was admitted into hospital 9th September, 1844, and came under Mr. Rynd's care on the 10th of November, complaining of acute pain in the right hip, thigh and leg, to the

sole of the foot, along the entire course of the sciatic nerve and its branches, but chiefly in the main trunk of the nerve. He is unable to sleep, from the pain, and quite unable to walk. He is much emaciated, and the muscles of the limb are attenuated and wasted. He has been ill for three years, during which time he has been almost always confined to bed. He has been frequently treated for the disease with calomel, to produce salivation, cupping, blistering, leeching, &c., all without any salutary effect. Exposure to cold and wet is assigned as the cause of the disease.

On the 13th of November the fluid was introduced, ten grs. acetate morphine to the drachm of creosote, one puncture behind the trochanter, and one half-way down the thigh. He was instantly relieved from pain, and walked steadily through the ward without any pain or difficulty; before, walking increased the pain. For about half an hour after the operation he felt uneasiness from the puncture.

16th. Says he is perfectly well in the thigh, and feels only a slight pain in the course of the anterior tibial nerve. The fluid was again introduced to-day to the seat of pain by two punctures; it disappeared as before.

29th. Says he is perfectly well; has walked every day since; has slight stiffness in the knee from previous want of use.

Ordered: Camphorated oil to rub the knee with.

December 15th. Left hospital to-day, saying he felt perfectly free from all pain and uneasiness.

February 6th. He walked up to Dublin to-day (20 miles), and says that since the last operation, on the 16th November, he has never felt his old pain, and is perfectly well.—*Dublin Med. Press, in Bulletin of Med. Science.*

The success of the same treatment is corroborated by a letter, directed to the Dublin Med. Press, and signed Arthur Guinness. Dr. Guinness used, for the introduction of the medicine, "a common lancet armed with morphine, mixed in a little water, about the consistence of paste, and operated precisely as is done in vaccinating an infant." With this he made several small punctures along the course of the nerve affected. In two cases, which he recites, he did not use creosote with the morphine, yet his success was perfect. In a subsequent case of neuralgia in the foot and leg, he used creosote *without morphine*, and this time also with success. This would seem to us to indicate that the *modus operandi* was by counter-irritation, or otherwise we must believe that creosote, thus applied, is possessed of anodyne properties.

Chemical Analysis of Rhubarb or Pie-plant.—Communicated for the *Buff. Med. Jour.* by Lieut. E. R. LONG, M.D., U. S. A. DR. FLINT,—Dear Sir: In the first number of your journal, you notice a case of supposed poisoning from the Pie-plant, and request an analysis of the same, to determine the proportion of Oxalic Acid that enters into its composition, as this is presumed to be its deleterious principle.

I have submitted this vegetable to the process given below, and as the results in two experiments were the same, it is thought to be sufficiently accurate for all practical purposes.

Process:—Take $\frac{1}{2}$ lb. of the stalks (petioles) of the plant, reduce them to a pulp on a grater; add a pint of rain water; then bi-carb Potass. $\frac{3}{4}$ ij to separate the free Oxalic Acid from the other elements of the vegetable. Pass the liquor through a coarse filter, to remove the vegetable fibre and other insoluble ingredients. To the solution add mur. lime q. s. to precipitate the Oxalic Acid in the form of an insoluble Oxalate of Lime; collect this on a paper filter and dry it. We thus obtain all the free acid in the plant. To extract the portion which is in combination with lime, treat the residue found in the first filter with nitric acid; add bi-carb. Potass. and filter through paper as before; collect the matter on the filter and dry it. This is also Oxalate of Lime, soluble in Nitric Acid, and insoluble in vinegar, or acetic acid; subjecting these two portions of Oxalate of Lime to a red heat, it will be converted into carb. of lime, weight gr. 10. This gives sufficient data to ascertain the proportion of Oxalic Acid. For as Carb. lime consists of Ca. O. plus C. O₂, 28,5—1 eq. base plus 22,12 1 eq. acid=50,62 eq., we have 28,5 parts of lime, in 50,62 parts of the Carb. There being 10 gr. of the latter, of course there will be 5,3 gr. of the former; for Oxalate of lime is composed of Ca. O. 28,5 plus C₂ O₃ 36, plus 2 aq. 18=87,74, eq. From which we see that the lime is to the Oxalic acid in the ratio of 28,5 36. Hence, as the combining equivalents of the lime, in the Carb. and Oxalate are the same, if we have 5,3 gr. of lime, there will be 6 4-10 gr. of the Oxalic acid. This gives 24.3-5 gr. of the acid to 1 lb (avoirdupois) of the plant.

In the latter part of the above process we observe a beautiful exhibition of elective affinity. When the Nitric acid is added, the lime lets go the Oxalic acid and unites with the Nitric; but upon the addition of the Bi. Carb. Potass. the Nitric acid having a stronger affinity for the alkali than for the lime, gives up the latter and unites by preference to the former; when the Oxalic acid again reunites to the lime, to the exclusion of the Carb. acid, which is also present in a nascent state;—the most favorable for chemical union.

It was also remarked that the Oxalate of lime before it was exposed to heat, weighed 16 gr. and the Carb. produced 10

gr.; the eq. of the Oxalate being 82,74, and the eq. of the Carb. 50,62; it will appear that the equivalents and the weights are in the same ratio. This confirms the theory of the composition of the Oxalic acid, i. e. C. O. plus C. O₂; for the Oxalate losing one eq. of C. O. (14.) and two eq. of water (18); total loss 32: this deducted from its eq. 82,74 leave 50,74, the equivalent (nearly) of the Carb.

If the above analysis be correct it seems that the small bundles of the Pie-plant found in market, weighing about 1 lb., contain a little more than 3j. of the acid. Now the question of practical importance is, whether any danger is to be apprehended from its use as an article of diet. The minimum fatal dose of the Crystallized acid on record in Standard Works, is 3ss; but it would doubtless be unsafe to take a much smaller dose than this of the acid in a free state. Yet as the dilute acid is regarded and used as a safe refrigerant in fevers, and as a portion of it in the Pie-plant exists in combination with lime and is therefore inert, it would hardly seem probable that any deleterious effects would result from the ordinary use of the plant.

It may not be amiss to remark, that in a case of suspected poisoning from this acid, the proper antidote is Carbonate of lime, or Carb. of Magnesia, as these will form insoluble Salts with the acid.—The alkalies form soluble Oxalates possessing poisonous properties.

I will add that in one of the above experiments the Petioles or Stalks, were used; in the other, both the stalk and leaf, without any appreciable difference in the result.

Yours, truly,

E. R. LONG.

June 5th, 1845.

On the Frequent Spontaneous Cure of Pulmonary Consumption, and the Indications furnished by Pathology for its Rational Treatment.—Dr. J. Hughes Bennett states, that of seventy-three bodies he has examined since last November, he found puckerings or concretions in the lungs in twenty-eight. They were combined with induration alone in twelve, with cretaceous or calcareous secretions in sixteen. They occurred in the right lung seven times, in the left lung twice, and in both lungs nineteen times. He thinks that these observations, conjoined with those of Roger and Boudet, serve to establish that the spontaneous cure of pulmonary tubercle occurs in the proportion of from one-third to one-half of all the individuals who die after the age of forty. Dr. Bennett observes, that as empirical means for accomplishing a cure have notoriously failed, perhaps a study of the method in which nature operates may be more successful. There seems no reason why cavities in the lungs should not heal with the same frequency as ulcerations

or abscesses in other internal organs, if the further deposition of tubercle could be arrested. This is only to be accomplished by overcoming the pathological conditions on which the deposition of tubercle depends. These are—first, a morbid state of the blood, the result of imperfect nutrition; secondly, local inflammation, by means of which an unhealthy exudation is poured out, which assumes the form of tubercular or scrofulous matter. The indications for treatment, are—1st, To overcome the dyspepsia and acidity of the alimentary canal; 2d, To furnish material necessary for the formation of a healthy chyme; and 3d, To combat the local inflammation. The dyspepsia and vomiting are often to be alleviated by naphtha. He attributes the good effects of this remedy to its power of allaying the irritability of the stomach, and thus enabling the patient to take nourishment. In following the second indication, he now, after four years employment of it in private, as well as in dispensary and hospital practice, strongly recommends cod-liver oil as a most valuable remedy.—*Edinburgh Med. & Surg. Jour.* in *Bost. Med. & Surg. Jour.*

Adulteration of Saffron.—J. Muller recommends concentrated sulphuric acid as the most certain test for saffron, for it immediately turns the color of pure saffron to indigo blue, (it however soon changes to dark red and brown.) The leaves of *crocus vernus*, which form the most frequent adulteration, are colored of a dark green by sulphuric acid.—*Archiv. der Phar.* in *Bost. Med. & Surg. Jour.*

CORRECTION.

We have received from Prof. Hamilton, a letter in relation to our remarks on the trial for malpractice, (*Timms v. White*), in the July number of this journal. In the report of that trial published in the "Buffalo Pilot," Dr. Hamilton is made to say, that he never succeeded in making a fractured limb of the same length as a well one; whereas, the words he used were—"I have never succeeded in an *oblique* of the *thigh*, occurring in an *adult*, to make the limb of the same length as before the fracture."

We would also correct a misprint in our notice of that trial. Instead of saying that the straight apparatus is preferable in fractures occurring near the extremities of the femur, it should be near the middle of that bone. We learn also, by the letter, that such is the opinion of Prof. Hamilton. D. B.

Erratum.—On page 49 of our last number, (July,) for "*omplias conspicantur*" read "*amplias conspiciantur*."